

MAY -2 1921 ✓

M T

Part 10. ✓

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The Film Pictures Corporation  
presents  
ELEMENTS OF THE AUTOMOBILE  
by  
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Produced for  
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M S

Cooling.

One

The temperature of the gases during combustion is  
from 3,000° to 3,500° F. The cylinders would become  
red hot if no provision were made for cooling them.

e 1

Outside view of engine. Dissolve to sectional view  
of cylinders. Action with explosions. Sound waves  
dissolve in.

ub

The most common method of cooling is to circulate  
water around the cylinders through a jacket.

e 2

Dissolve to water jackets. Pointer indicates them.  
Water dissolves in. Action of pistons and water.

ub

The valves are also cooled in this manner.

e 3

Sectional view of cylinders which dissolves to sec-  
tional view through valves. Pointer indicates jack-  
ets. Note: (Water is in after dissolve is made. Then  
cut when pointer flashes in. After pointer is cut  
water flashes in.)

ub

The water enters the engine on one side.

e 4

Rear view of engine. Pointer indicates hole. Dissolve.  
Dissolve to breaking of cylinders with water. Then  
to section of cylinders with water (no action).

ub

The water passing through the jacket absorbs the

heat and becomes hot in turn. It is then conducted to a radiator where it is cooled.

Sc 5 Rear view of engine, cylinders in section, water in jacket. Radiator dissolves in. Pause. With the exception of the cylinders, the engine dissolves out, (no section).

Sub There are several types of radiators. The one shown here consists of many small tubes, down which the water flows.

Sc 6 Scene of section of cylinders and section of radiator. Action of water in cylinders and water flowing down the tubes in the radiator.

Sub A front view of the radiator.

Sc 7 Front view of radiator. Portion dissolves to section with water. Pause. Action of water.

Sub A fan pulls air around the tubes and cools the water rapidly.

Sc 8 Side view. Section of cylinder and radiator. Fan dissolves in. Action of fan, air and water. Flash to front view of radiator. Action of fan and water.

Sub There are two methods of circulating the water:  
(1) The thermo-syphon.  
(2) The pump system.

Sub Most makes of cars use the pump system which is illustrated here. The pump shown is of the centrifugal type.

Sc 9 Outside view of engine and radiator. Pump dissolves in. Pointer indicates it. Flash to close up. Dissolve to section of pump. Action of paddle wheel. Dissolve to outside view. Flash to outside view of engine and radiator. Pointer on pump. Dissolve to section of cylinder, radiator and pump. Action of pump. (no water shown)

Sub The cooled water from the bottom of the radiator is pumped through the hot jacket to the top of the radiator where it is cooled again.

Sc 10 Sectional view of cylinder, Radiator and pump in sectional view, also. Water dissolves in. Action of pump and water. Pointer indicates course.

Sub The complete circulation.

Sub While the engine is running the pump circulates the water.

- Sc 11 Sectional view of cylinders, radiator and pump. Action of pump and water. Cross dissolve to outside view with arrows representing circulation.
- Sub --and the fan is drawing the cool air in through the radiator.
- Sc 12 Outside view. No action. Fan dissolves in. Action of fan. Circulation of water and air dissolve in action. Fade out.
- Sc 13 The Clutch.
- Sub So far, the engine has been shown as permanently connected to the rest of the propelling mechanism.
- Sc 1 Long shot, side view of full car. Frame dissolves out leaving engine, propeller shaft and rear wheels. Pointer indicates connection at flywheel. Dissolve to close up.
- Sub It is necessary, at times, that the engine be disconnected.
- Sc 2 Long shot. Wheels, propeller shaft and engine (cylinders in section). Pointer indicates where separation should be. Dissolve to separation. Action of engine with explosions.
- Sub The device used to connect and disconnect is called the clutch.
- Sc 3 Long shot. Clutch dissolves in. Pointer works it in and out. Action of engine. Pointer engages and disengages the clutch several times. Flash to close up in action. Engaged and disengaged several times.
- Sub There are several types. This one shown here is a simple one and is called a "cone" clutch.
- Sc 4 Close up of flywheel and clutch. Flywheel dissolves out. Dotted form to show cone shape.
- Sub The "cone" clutch fits into the flywheel.
- Sc 5 Close up of clutch. Flywheel dissolves around it. Dissolve to section of flywheel.
- Sub It can be engaged or disengaged at will.
- Sc 6 Close up of flywheel and clutch (flywheel in section). Clutch works in and out several times.
- Sub spring ring keeps the clutch "in".

- Sc 7 Outside view of clutch and flywheel. Dissolve to sectional view of both. Spring dissolves in. Pointer indicates it. Hook pulls clutch out and then releases it. This action is repeated several times.
- Sub A foot-pedal pushes it "out".
- Sc 8 Close up of section of clutch and flywheel. Dissolve to a slightly smaller view which includes a portion of engine. Foot-pedal dissolves in. Foot dissolves in. Action of in and out several times.
- Sub The clutch is let in gradually.
- Sc 9 Phantom view. Pointer indicates clutch. Clutch is let in gradually.
- Sub Notice the "slipping action" of the clutch when it is let in gradually. This prevents a sudden application of power which might do damage.
- Sc 10 Phantom view. Clutch is pressed out and let in gradually several times. Fade out in action.
- Sub End of Part 10.

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